

様式PCT/ IPEA/ 409 (表紙) (2004年1月)

第I欄 報告の基礎

1. この国際予備審査報告は、下記に示す場合を除くほか、国際出願の言語を基礎とした。

- ☐ この報告は、_____ 語による翻訳文を基礎とした。
それは、次の目的で提出された翻訳文の言語である。
- ☐ PCT規則12.3及び23.1(b)にいう国際調査
- ☐ PCT規則12.4にいう国際公開
- ☐ PCT規則55.2又は55.3にいう国際予備審査

2. この報告は下記の出願書類を基礎とした。(法第6条(PCT14条)の規定に基づく命令に回答するために提出された差替え用紙は、この報告において「出願時」とし、この報告に添付していない。)

☒ 出願時の国際出願書類

☐ 明細書

第 _____ ページ、 出願時に提出されたもの
第 _____ ページ*、 _____ 付で国際予備審査機関が受理したもの
第 _____ ページ*、 _____ 付で国際予備審査機関が受理したもの

☐ 請求の範囲

第 _____ 項、 出願時に提出されたもの
第 _____ 項*、 PCT19条の規定に基づき補正されたもの
第 _____ 項*、 _____ 付で国際予備審査機関が受理したもの
第 _____ 項*、 _____ 付で国際予備審査機関が受理したもの

☐ 図面

第 _____ ページ/図、 出願時に提出されたもの
第 _____ ページ/図*、 _____ 付で国際予備審査機関が受理したもの
第 _____ ページ/図*、 _____ 付で国際予備審査機関が受理したもの

☐ 配列表又は関連するテーブル

配列表に関する補充欄を参照すること。

3. ☐ 補正により、下記の書類が削除された。

- ☐ 明細書 第 _____ ページ
- ☐ 請求の範囲 第 _____ 項
- ☐ 図面 第 _____ ページ/図
- ☐ 配列表(具体的に記載すること) _____
- ☐ 配列表に関連するテーブル(具体的に記載すること) _____

4. ☐ この報告は、補充欄に示したように、この報告に添付されかつ以下に示した補正が出願時における開示の範囲を超えてされたものと認められるので、その補正がされなかったものとして作成した。(PCT規則70.2(c))

- ☐ 明細書 第 _____ ページ
- ☐ 請求の範囲 第 _____ 項
- ☐ 図面 第 _____ ページ/図
- ☐ 配列表(具体的に記載すること) _____
- ☐ 配列表に関連するテーブル(具体的に記載すること) _____

* 4. に該当する場合、その用紙に“superseded”と記入されることがある。

第V欄 新規性、進歩性又は産業上の利用可能性についての法第12条（PCT35条(2)）に定める見解、それを裏付ける文献及び説明

1. 見解

新規性 (N)	請求の範囲	1-8	有 無
	請求の範囲		
進歩性 (IS)	請求の範囲	1-8	有 無
	請求の範囲		
産業上の利用可能性 (IA)	請求の範囲	1-8	有 無
	請求の範囲		

2. 文献及び説明 (PCT規則70.7)

請求の範囲1について

国際調査報告において提示した文献1 (US 5515683 A & JP 8-501658 A) に記載されたものには、本願の当該請求の範囲に係る発明における「前記の各熱電変換素子のうち一つ以上の各第1導電部材、第2導電部材における接合部材対向部を、その残りの熱電変換素子のうち一つ以上の各第1導電部材、第2導電部材における接合部材対向部に対してそれぞれ連結部材により電氣的に直列接続し、前記の各連結部材のうち少なくとも一つ以上に直流電源を直列接続することにより、前記の各熱電変換素子から成るペルチェ効果熱伝達回路系を構成」する点が、記載も示唆もされておらず、本願の当該請求の範囲に係る発明は、上記構成を採用し、且つペルチェ効果熱伝達回路系の発熱側と吸熱側との間を所定距離隔てて熱的な開放系にすることにより、発熱側と吸熱側とをそれぞれ熱的に独立した環境に配置させて、ペルチェ効果が消滅しないようにできるという作用・効果を有するものであり、新規性・進歩性を有するものと認められる。

請求の範囲2-8について

請求の範囲2における「各連結部材のうち一つ以上における任意の箇所から電気ポテンシャルエネルギーを取り出すことにより、熱エネルギーから電気ポテンシャルエネルギーへ変換することが可能な直接エネルギー変換電気回路系を構成した」点および請求の範囲3における「各連結部材のうち一つ以上における任意の箇所から取り出された電気ポテンシャルエネルギーで電気分解することにより、その電気ポテンシャルエネルギーから化学ポテンシャルエネルギーに変換する」点は、文献1に記載も示唆もされておらず、本願の当該請求の範囲に係る発明は、なお新規性・進歩性を有するものと認められる。

Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P03MED002WO	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/JP2003/015502	International filing date (day/month/year) 04 December 2003 (04.12.2003)	Priority date (day/month/year) 06 December 2002 (06.12.2002)
International Patent Classification (IPC) or national classification and IPC H01L 35/32		
Applicant KABUSHIKI KAISHA MEIDENSHA		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of <u>3</u> sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising: a. <input type="checkbox"/> (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows: <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> (sent to the International Bureau only) a total of _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items: <input checked="" type="checkbox"/> Box No. I Basis of the report <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application

Date of submission of the demand 23 April 2004 (23.04.2004)	Date of completion of this report 25 January 2005 (25.01.2005)
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2003/015502

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This report is based on translations from the original language into the following language _____, which is language of a translation furnished for the purpose of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

- ☒ The international application as originally filed/furnished
- ☐ the description:
- pages _____, as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☐ the claims:
- pages _____, as originally filed/furnished
- pages* _____, as amended (together with any statement) under Article 19
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☐ the drawings:
- pages _____, as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims	1-8	YES
	Claims		NO
Inventive step (IS)	Claims	1-8	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-8	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)**Claim 1**

Document 1 (US, 5515683, A, & JP, 8-501658, A) cited in the ISR neither describes nor suggests the constitution in the subject matter of claim 1 of the present application, in which "(1) the portions of the first conductive member and the second conductive member opposite to the bonding member in at least one or more of the said respective heat-electricity conversion elements are electrically connected in series to the portions of the first conductive member and the second conductive member opposite to the bonding member in at least one or more of the other heat-electricity conversion elements, respectively by means of connecting members, and (2) a DC power source is directly connected to at least one or more of the said respective connecting members, to constitute a Peltier effect heat transfer circuit system consisting of the said respective heat-electricity conversion elements." The subject matter of claim 1 of the present application employs the above-mentioned constitution, and a predetermined distance is kept between the heat releasing side and the heat absorbing side of the Peltier effect heat transfer circuit system, to form a thermally open system, so that the heat releasing side and the heat absorbing side can be placed in thermally independent environments, to give a working effect that the Peltier effect does not vanish. So, the subject matter of claim 1 appears to be novel and to involve an inventive step.

Claims 2-8

Document 1 neither describes nor suggests the constitution of claim 2, in which "a directly energy converting electric circuit system is formed, wherein electric potential energy can be taken out from a given point at one or more connecting members, to allow conversion from thermal energy into electric potential energy," or the constitution of claim 3, in which "the electric potential energy taken out from a given point at one or more connecting members is used to carry out electrolysis, for conversion from the electric potential energy into chemical potential energy." So, the subject matters of claims 2-8 of the present application appear to be novel and to involve an inventive step.